



A Critical Review of WTC 'No Plane' Theories

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NEW: Update, 8 November 2006: Rebuttal to Rick Rajter's 2nd Hit Deceleration Analysis

Update, 30 October 2005: Rebuttal to Nico Haupt

Update 2, 7 November 2005: WTC impact footage from WNYW

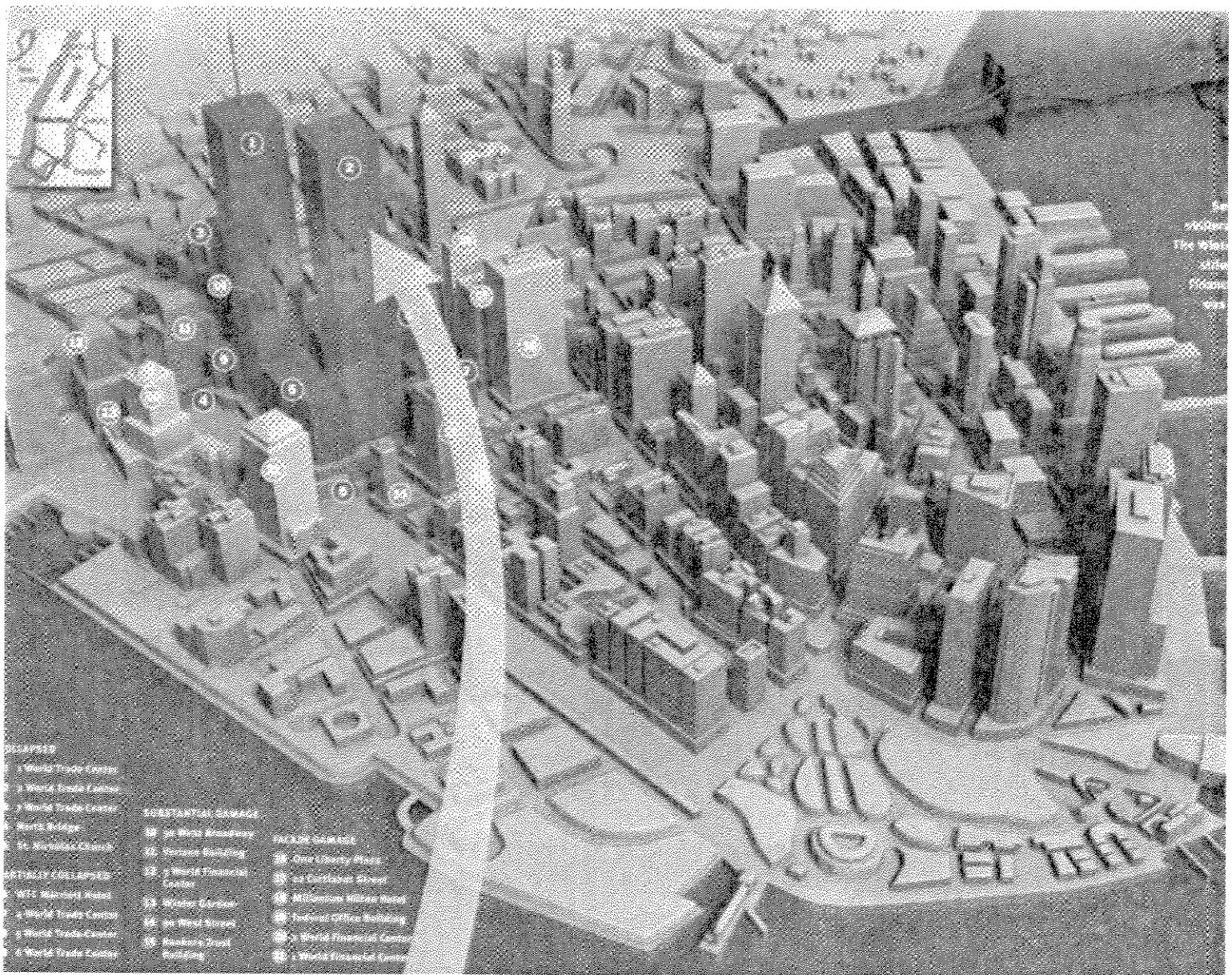
Overview

With the amount of attention that the Pentagon no-plane theories have received, it shouldn't be surprising that some would also make the bizarre claim that no 767s hit the World Trade Center, despite voluminous video and photographic evidence to the contrary. My previous articles dealt with the core of these claims at length. Those articles were lengthy, so the purpose of this review is to provide somewhat condensed and updated summary for those new to the subject or lacking in the time to delve into the details of the imaging analysis.

There have been two no-plane hypotheses put forward: The first, that small planes or missiles hit the towers and these were covered over in the videos and photos of the impact by synthetic 3D graphic images of 767s (including real-time superimposition of these images on all live TV footage as it was broadcast). The no-planers have labeled this scenario "TV Fakery." The second argument is that the planes (at least the second plane) was in fact a hologram generated by classified technology. This hypothesis has since been abandoned. The proponents argue that anomalies in the visual record indicate the fraudulent nature of the computer generated second plane and show that the plane in the Naudet video of the first hit was not the size or shape of a 767.

The over-arching weakness of the TV fakery argument is this: how could the perpetrators have ensured control over all the images taken of the planes that approached the WTC? Only one unmodified image posted to the web would have exposed the operation. New York is a media capital of the world, with national networks, local network affiliates and independent TV stations, international media bureaus, and many independent video companies like the kinds I've worked for, and professional photographers. Professionals who have been rushing out to document whatever they could, through professional pride or the hope for making a buck off it. Evan Fairbanks and war photographer James Nachtway are some examples. And then there are also cameras in the possession of ordinary citizens and the thousands of New York's ever-present tourists. In addition, one should consider the possibility of foreign intelligence assets acquiring their own images of the attack (which so many knew was coming) which could be used for blackmail.

The following 3D relief diagram from "One Nation" shows how many vantage points were available to capture the approach of flight 175:



The plane would have been clearly visible over most of the southern tip of Manhattan, from the streets in a wide area of shorter buildings just south of the towers, the majority of the southern and eastern facing windows of the buildings south of the towers (such as this photo from hereisnewyork.org), the rooftops of those buildings, the Manhattan and Jersey shorelines along the Hudson, any boats on the water and Ellis Island, where camera toting tourists visit the Statue of Liberty. Moreover, since the plane, hitting at floors 77-85 was above most of the tall buildings on the East side, the plane was visible from higher vantage points all over midtown, Brooklyn and large parts of Queens.

What we have of images of flight 175 from 9/11 is exactly what we would expect: a great variety of still and moving images from a variety of angles from near and far and from mainstream media down to amateurs. There are absolutely no images of missiles or planes. So, were these photographers and videographers all agents? There has been no research into their backgrounds. If they weren't, then what was the chain of custody of the tape before being aired? Was the allegedly modified footage the original or a duplicate of the original (as one would expect) supplied by the videographer? Who now has the original? If the photographer has the original, then are we to believe he or she does not care that their image showed something different than was on TV? None of these questions are answered. The default explanation, and the only answer possible, is the bug-eyed assertion that somehow the perps 9/11 controlled all the cameras in NY on 9/11.

Perhaps, like the movie *Minority Report*, they had pre-cogs who intuited exactly where each and every person videotaping the plan would be standing.

In reality, the perpetrators would have found out about each image that they didn't control only after the image appeared on the web in the media. And then it would have been too late to alter the image. The TV fakery hypothesis, therefore, is utterly absurd.

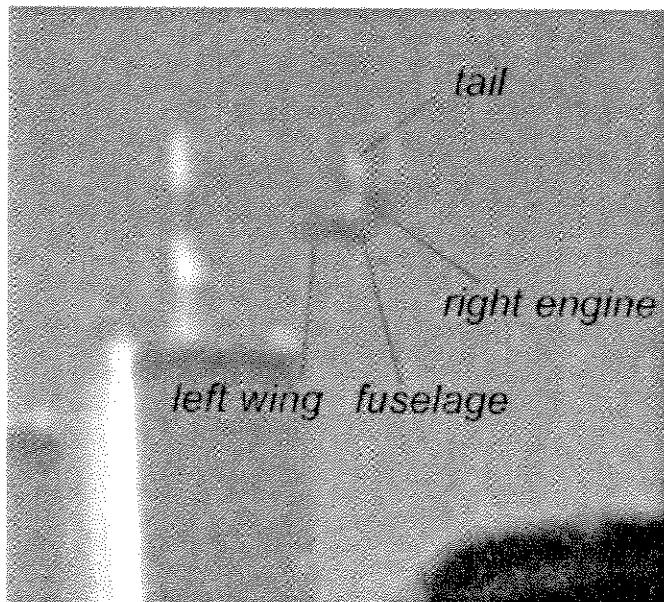
The Naudet Footage of the First Impact

In the case of the first impact we have two known pieces of footage. The better one, the Naudet video, is not good quality. This has to a wealth of speculation that the footage does not show a 767 because the plane is not immediately recognizable as a 767. The reason for this is simple: the plane is very small and the footage is out of focus, as one can see about 10 seconds after impact when the camera briefly zooms all the way in to the tower. It was adjusted for the firemen 10 or 20 feet away. But even if it was in focus, an object as small as the plane was in that footage would still not have been very clear, because video is not perfectly sharp down to the individual pixels, the square or rectangular blocks that make up digital images (at least in the type of cameras the Naudet crew use). The plane in the Naudet video occupied a space only about 20 by 20 pixels, not enough to show much detail even if the video were in focus. You might as well try to duplicate Michelangelo's "David" using bricks. The claim that the video should have clearly shown a 767 is an amateur argument born out of a lack of understanding of how resolution affects the clarity of that image. And this misunderstanding continues, at least in the case of Gerard Holmgren, more than a year later.

Compounding the misinterpretations due to blurry footage, the no-planers were originally using a half size, compressed mpeg mov file to conduct their analysis. Moreover, Webfairy performed processing on this low quality movie which created even more degraded images, aptly described by Mark Bilk as "abstract video art." The no-planers, not knowing what full quality video was or what compression artifacts were, claimed these muddy, altered images were proof of the absence of a real plane.

In reality, what can be seen in the unsullied Naudet footage shows what a 767 should look like at that small resolution and out of focus.

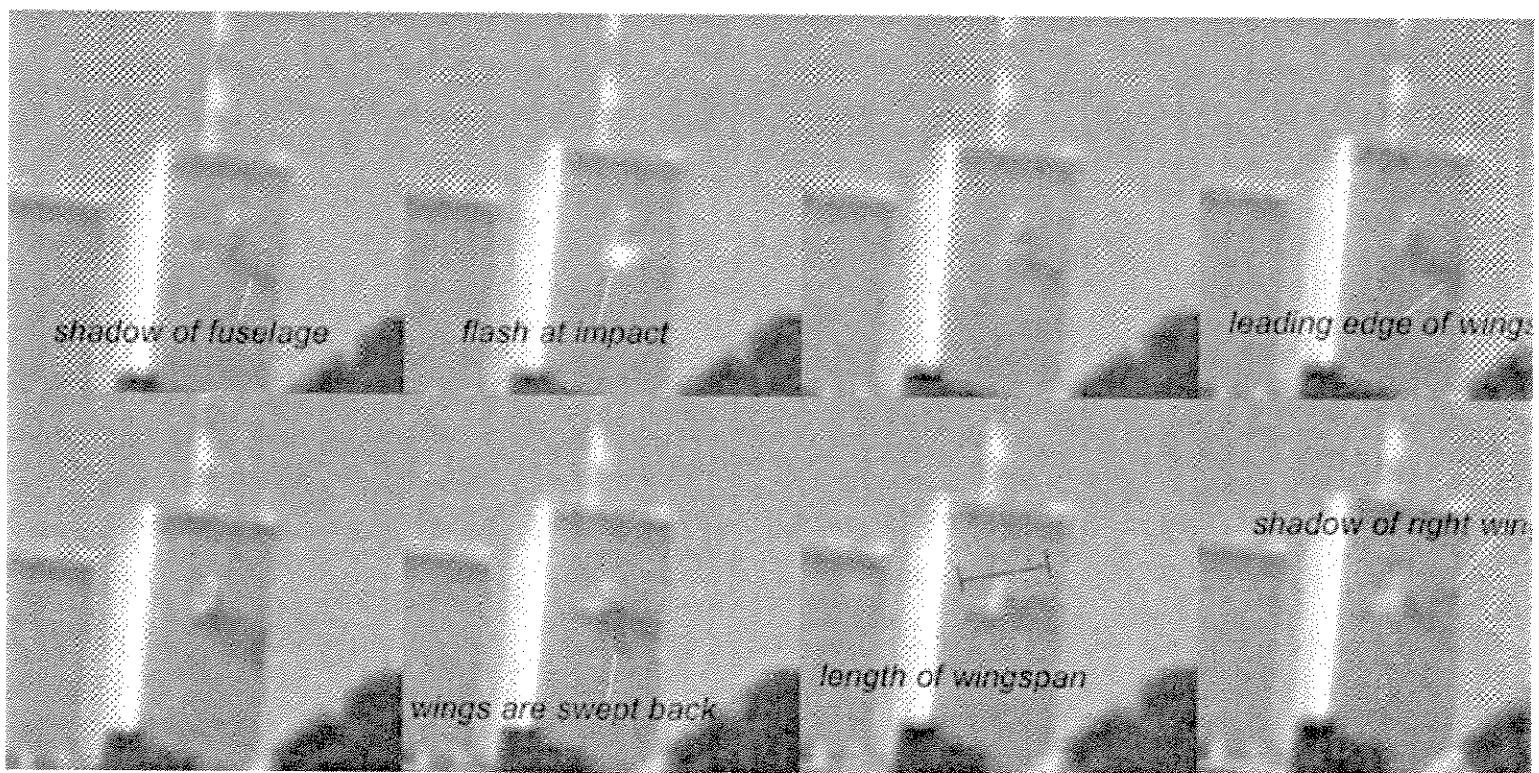
The object clearly does have wings, a fuselage and a tail, ruling out the absurd missile hypothesis.



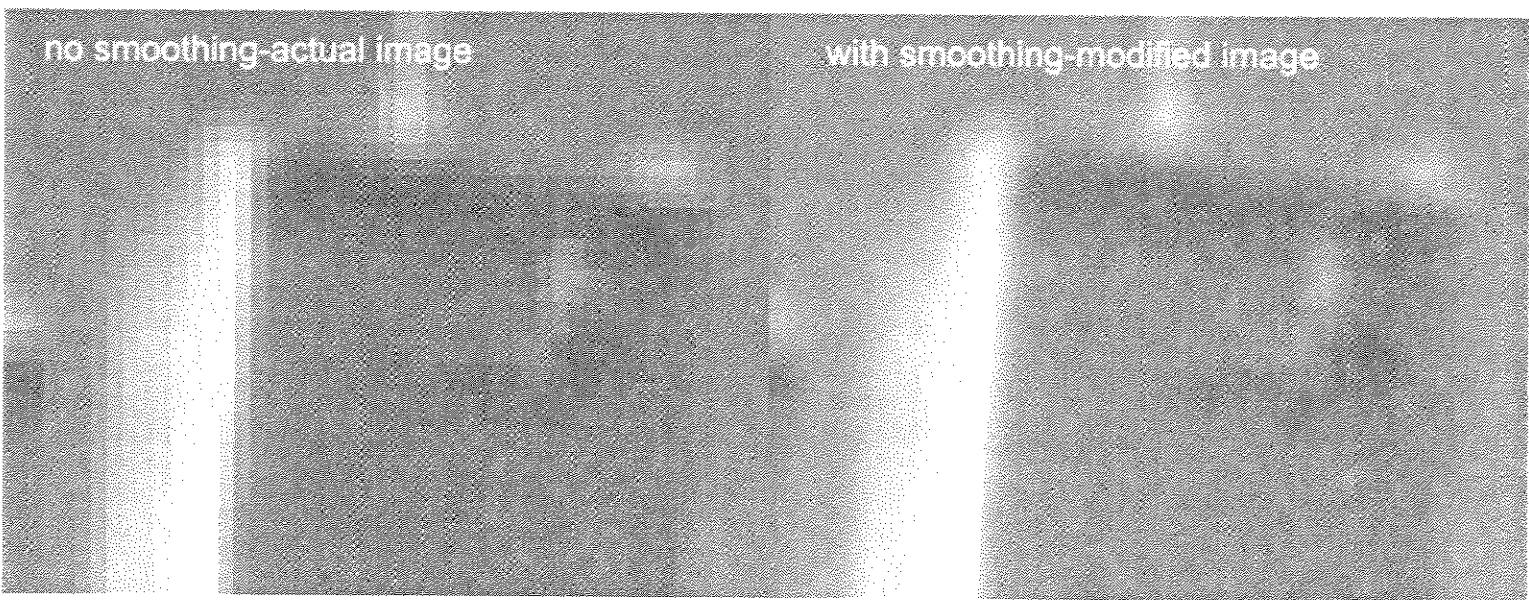
The fuselage, as best can be ascertained in the blurry footage, is roughly the expected length of a 767.

The shadow of the plane, as seen below, tells us several things:

- this is an airplane, with a fuselage and wings.
- the wingspan is about 75% of the width of the WTC, the expected size of a 767.
- the wings are clearly swept back, refuting the claim that the wings extend straight out from the fuselage.



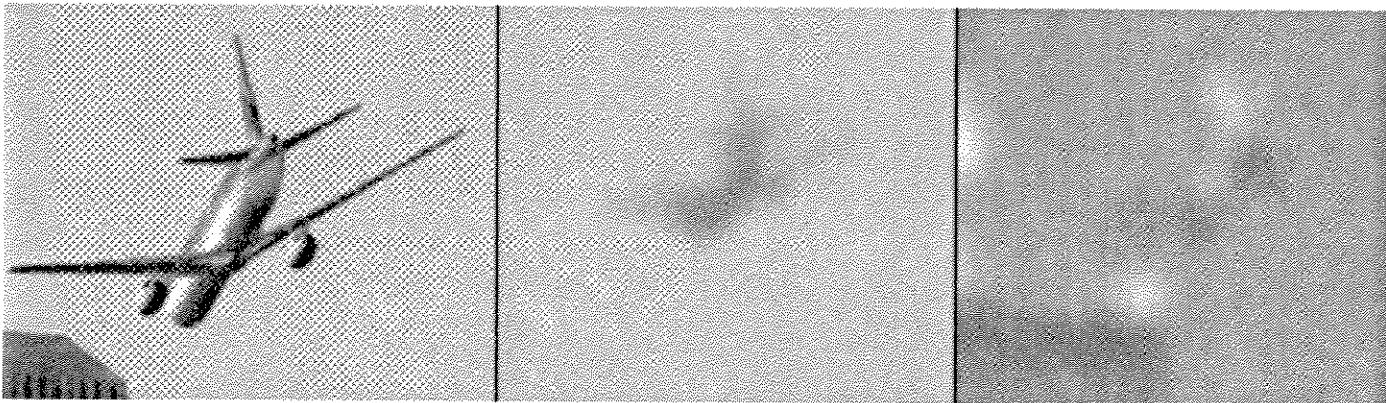
It should be noted that the magnified images of the Naudet video have been subjected to "smoothing" to blend the information between pixels, making it seem like there is more detail in the enlargements than there really is. This may contribute to the impression that a plane should be more discernible. Scaling without smoothing shows the true lack of detail available to show the plane:



Markus Icke makes a more subtle argument regarding the Naudet video. In his article "The X-11 drone" he claims that it is in fact a large plane but that it doesn't have wing mounted engines and has wings that are not swept back like a 767. His articles on the WT hit show more sophistication than some of the other no-planers and he has at least been able to grasp the technical issues appropriate to video analysis, after some earlier mistakes. However, beneath the glossy facade are technical and logical errors..

In arguing there are no wing mounted engines, he points out that the left engine cannot be seen. The stumbling block for Icke's argument is the dark circular shape to the right of the fuselage, which is darker, thicker and stubbier than the left wing. At the angle view, the right wing should be thinner and less visible than the left wing. Icke's first attempt to deal with this shape was to simply ignore it and leave it off the model of his "X-11", while claiming there was "not enough evidence" to speculate on what it could be. But it did need other evidence to be considered: it was the evidence. And what it was evidence for was a wing mounted engine. The following graphic shows how the right engine and wing root of a clear 767 image, when blurred like the Naudet video, form a circular blob ex-

like that in the Naudet video and the left engine blends with the fuselage:



Icke continued to struggle with this shape in his most recent article, claiming that it was possibly the inside of the right wing or some large unexplained object. Both claims are easily dismissed. The shape is too big to be the inner part of the wing alone and a large object mounted on the wing on just one side of the airplane would cause the plane to be unstable and presumably not capable of flight (and that leaves out explaining the purpose of this large object). The arrangements of shapes on the plane in the Naudet footage can only be reasonably explained by wing-mounted engines, and analysis that can be repeated using any similar plane at a similar angle such as one provided by Gerard Holmgren.

The common misperception that the plane in the Naudet video had wings more perpendicular to the fuselage than a 767 comes from mistaking the right engine for the right wing.

In a recent article Icke has created a 3D rendering of a 767 approaching the WTC that shows a different coloration and shape than the plane in the Naudet footage. He claims this proves the plane in the Naudet video could not have been a 767. The program Icke uses to make the 3D graphics, Flight Simulator, comes nowhere close to being capable of creating photo realistic lighting. It doesn't even generate shadows cast by objects in the scene (such as the shadow of the wings onto the engine mounts), let alone reflections, inc reflected illumination (radiosity), or atmospheric haze. These properties are indispensable to creating a believable image. In real life the surrounding environment is going to be reflected on the metallic body of the fuselage. The more the tone and color of the plane matches the brightness and color of the background, the more it is going to blend with that background (especially when blurred) making the fuselage less prominent. Icke's models lack this effect.

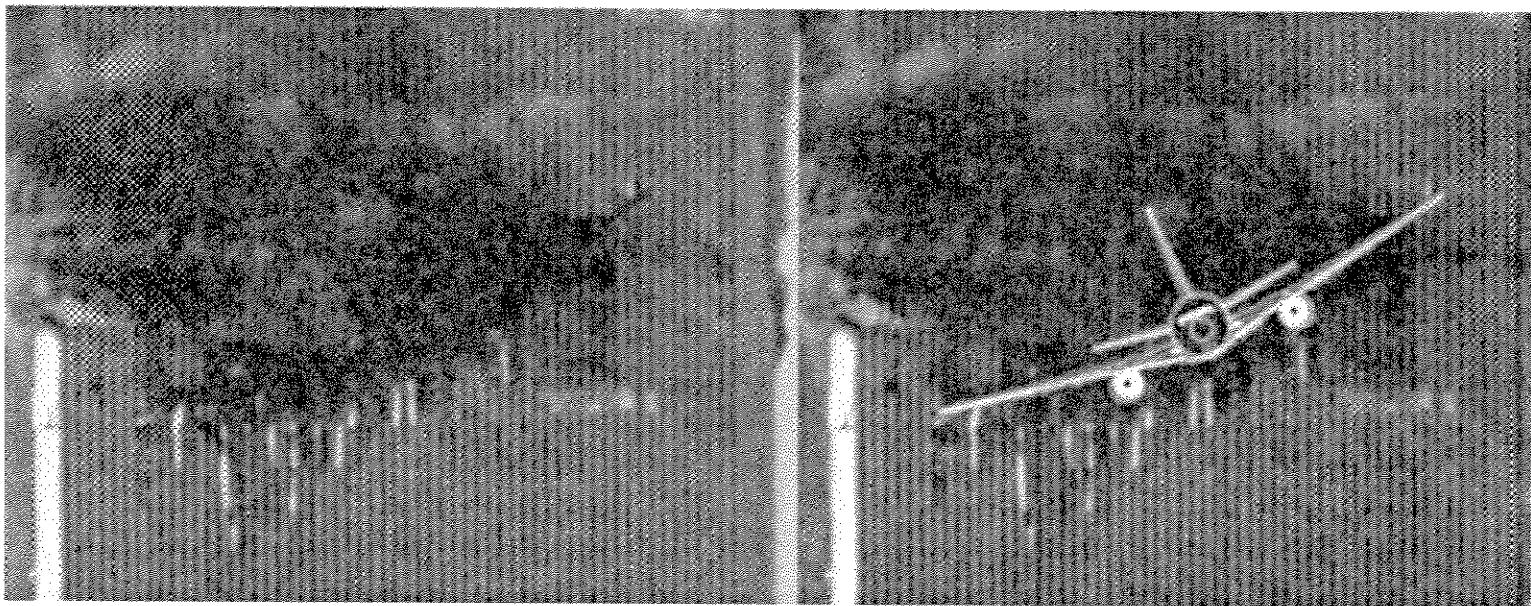
(It should be noted that Holmgren, in a recent interview with David West, named Flight Simulator as the software used to create the media overlays.)

Additionally, Icke's model is misaligned. The tail is rotated up and to the right, away from the camera, compared to the Naudet footage. This makes the fuselage of his model less foreshortened by perspective, making it appear longer than what we see in the Naudet video. Icke's model is misaligned because he believes that the plane approached the WTC in a path directly perpendicular to the wall. In fact the plane was approaching from the left: the shadow of the right wing tip is the last piece of shadow of the plane that is visible, indicating a non-perpendicular approach. Icke has consistently ignored this evidence.

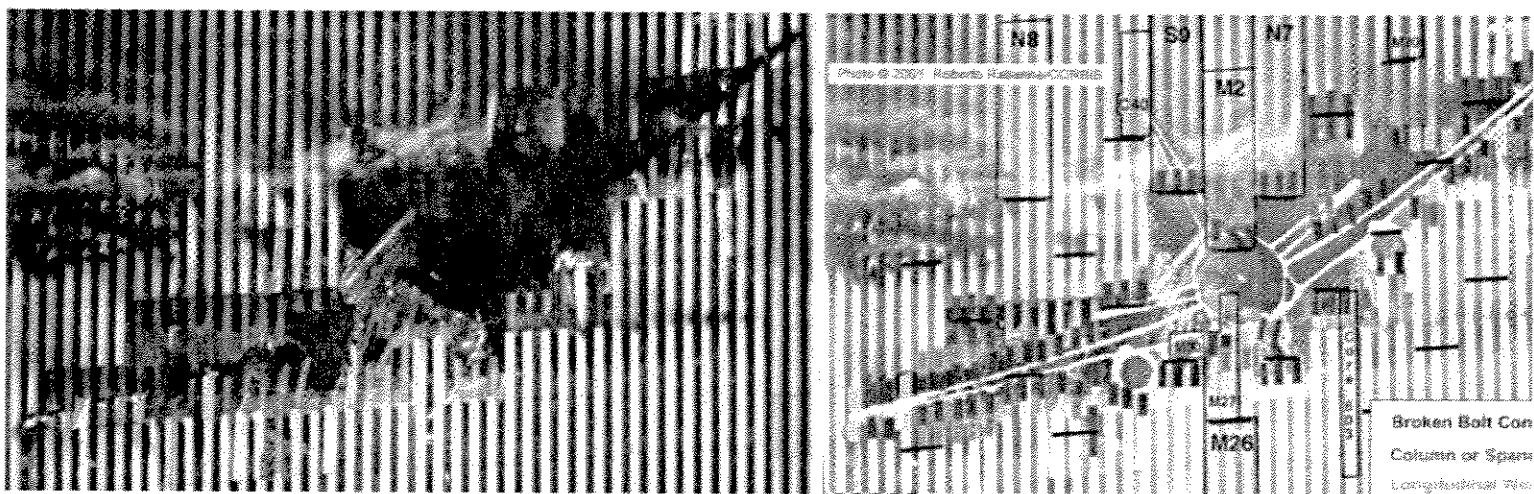
The tail is the same size in both the Naudet video and Icke's graphic. This further supports the conclusion that it is in fact the same plane in both images and that the differences are due to foreshortening and lighting.

The WTC1 Hole

None of the arguments against a 767 can adequately explain how a hole in the building was created that fits a 767 perfectly, including widening of the hole where the engines were located. Here is a 767-200 diagram (with the wings tilted upwards 3 degrees to simulate flexing due to aerodynamic lift (aeronautic experts will have to determine the exact amount of flexing), sized to 75% of the width of WTC and rotated to fit over the hole in WTC1:



The diagram from the NIST report shows the same alignment:



No other plane fits the hole as precisely as a 767, down to the narrow grooves created by the wings on either side of the impact hole, especially visible on the right. Attempts at overlaying diagrams by no-plane advocates, such as Stefan Grossmann and the German Engineers, are flawed, using inaccurate diagrams of 767s, aligning those diagrams incorrectly and/or using photographs from angles that appear to show debris where the engine holes should be.

Combined with the certainty that the large plane in the Naudet video has wing mounted engines, there is absolutely no rational reason to bother with considering planes other than a 767. Substituting another airliner with wing mounted engines gains the perpetrators nothing but the risk of exposure. Could it be a 767 other than flight 11? Possibly, but there is no physical evidence to prove that substitution. The claim that flight 175 was a windowless 767 tanker is also baseless, since none of the images available are high enough resolution to discern the presence or absence of windows.

2nd Hit TV Fakery?

Unlike the first hit, the multiple videos and photographs of the second hit clearly show a 767, so the no-planers are forced to claim these videos were faked with computer graphics, overlaid in real-time on live TV or on tape afterward. Why the perps would resort to this risky operation when there was no technical obstacle to flying a plane into a building is never credibly explained.

Not surprisingly, the anomalies turn out to be amateurish image analysis mistakes.

The observation of wings "flickering" on and off is one good example. These "flickering wings" only occur in the poorer quality video which the brightness of the wing closely matches that of the background. What is happening is simple: noise and compression artifact.

blur what little visual data there is of the edge of the wing. The wing then becomes indistinguishable from the background in that frame, hence the "disappearing wing" anomaly. Whether it happens or not in a particular frame is determined by random dispersal of noise or compression artifacts. But stepping back from the technical analysis, the flickering wing claim itself is fundamentally illogical: Other video angles show no flickering wing, undercutting the idea that the hologram was malfunctioning. And flickering like this simply does not happen in 3D animation unless the artist programs it to happen, thus eliminating the TV fakery hypothesis.

Markus Icke argues that the plane was misshapen, with a "port-wing anomaly" that resulted in a droopy left wing. This argument arises from the fact that he used two images that had differing aspect ratios: one was stretched vertically compared to the other, creating a difference in their shapes. When this is corrected, the "port wing anomaly" disappears.

In the videos and photos, including the Park Foreman footage and the CNN Battery Park footage, we can see detailed, realistic phenomenon occurring: the shadow of the smoke cloud, the reflection of the ground below on the bottom of the plane and water vapor condensing above the wings. In addition, the plane matches the motion of the cameras perfectly and disappears cleanly behind buildings. Yet the no-planers contend the shape of the plane is distorted, meaning the perps used a misshapen model, something that in the world of digital imaging can only happen on purpose. Given the accuracy of the other aspects of the images, this is grossly illogical.

Differences between the images in the color or brightness of the sky or plane are not necessarily indications of fakery. These differences can be caused by different lighting conditions, camera exposure levels or adjustments to the contrast, brightness or color of the images. Besides, someone who had the skill to create a photo-realistic plane, matched to the movement and focus of the camera and reflecting light from the surrounding environment, would have easily handled these much simpler aspects of digital image manipulation.

A key claim of the no-planers is that the plane did not decelerate as it should have when it hit the building. Hence, their oft-repeated accusations of a fake "butter plane" melting into the building. This claim is easily disproved by a visual examination of the motion of the 767 in the Evan Fairbanks footage. The plane does decelerate as it enters the building, losing about 12% of its speed and 25% of its kinetic energy as it passes through the outer wall and office space.

The no-planers have raised concerns about explosion not occurring at exactly impact. But even if combustion started at impact, forward momentum would carry fuel further into the open interior space of the building as it started to spread and ignite, and the expanding gases of the explosion would only push back out through exterior walls a split second later, as we see in the video.

Those of us who have video production experience have been amused by the term "bluescreen fakery" used by the no-planers to describe the allegedly faked footage. Bluescreen is a technique used for keying real-life objects, not computer generated images, or other images. Computer graphics (CGI) use what is called an "alpha channel", a sort of virtual stencil, to overlay the image digitally. If bluescreen was used, this would mean that the plane we saw was a model on wires. Funny. As of this writing, the no-plane material on Jimmy Walter's site still uses this terminology. Either the no-planers are being sloppy, as usual, or displaying a lack of technical proficiency, as usual.

Faulty Physics

Morgan Reynolds cites the no-plane arguments of the "German Engineers" in his widely distributed article "Why Did the Trade Center Skyscrapers Collapse?" Jim Hoffman deconstructs this easily rebutted material in his response to Reynolds' piece, so I won't go into depth with it here. The central argument of the "engineers" is that the holes created by the impacts are simply not large enough to be made by 767s. There is no computer modeling of the physics involved. The authors simply draw circles around the areas that look like impact points and note that a 767 doesn't fit within these circles. The impact areas are, in fact, easily explainable: the heavier, denser central part of the plane penetrated the outer wall of the WTC but the thinner, lighter wings did not, leaving tell-tale indentations but not holes. All the debris occluding the holes could be either material that fell down from damaged areas just above the impact or flaps of wall or that folded to the side when the plane entered but then fell back once it had passed.

The German Engineers don't offer any structural analysis to support their claim that the wing tips should have penetrated the WTC outer wall. However, the NIST computer models testing the dispersal of kinetic energy on impact showed that every part of the aircraft except for wing sections with empty fuel tanks would penetrate the outer wall of the WTC. This scenario explains the shape of the impact area perfectly. No-plane advocates have not conducted their own computer impact modeling, and until they do the NIST report remains the authority on the subject. Grossmann has stated his intention to conduct such a computer analysis, but I'm not going to hold my breath waiting for a complex model of the physics of impact from someone who can't even properly align a diagram of a 767 over the entry hole.

The attempt by the "engineers" to create doubt by showing differently shaped impact holes in buildings made of different materials and construction techniques than the WTC demonstrates nothing and is a waste of time.

Reynolds' more recent article "We Have Some Holes in the Plane Stories" contains numerous factual and analytical errors.

He mentions several times that there is no sound from the plane impacts. This is false. On the Naudet and CNN footage of the two impacts, we hear not only the sound of the jet engines (exhibiting the expected Doppler effect) but the sound of the impact (delayed slightly by the time it took the sound to reach the camera).

Also mentioned numerous times is the false claim that the plane did not decelerate. As I showed above, the plane decelerates.

Reynolds presents a long-winded argument that posits that it was against the laws of physics for the plane to easily penetrate the outside wall and then be stopped further inside the building. This analysis demands the assumption that the central core has the same strength or stopping power as the outer wall when the core columns were thicker than the exterior columns and the plane had already lost 25% of its kinetic energy penetrating the outer wall and floors. It is only an illusion that the plane entered the building intact (more on this below). In reality it would have been partially fragmented (how much is hard to tell, as the MIT study points out) so the plane debris would have been spread out over a greater area, lessening the kinetic energy applied per unit area of the core columns, allowing the columns to better withstand the impact.

So why didn't more wreckage exit the other side of the building? In addition to the steel columns, the central core had a great amount of gypsum wall paneling. The NIST report states:

The stairwells and elevator shafts were surrounded by 2 in. thick, tongue-and-groove, cast gypsum panels, covered with two or three sheets of 5/8 in. gypsum board. The demising walls were made of two sheets of 5/8 in. thick gypsum wallboard on each side of steel studs.

We can estimate the total weight of the gypsum walls (from Jim Hoffman):

Assume a wall area on one floor of the core of $40\text{m} \times 3\text{m} \times 10 = 1200\text{m}^2$

Assume it's all 3cm thick gypsum, then it's 36m^3 or $36,000,000\text{cm}^3$

Gypsum is 2.31g/cm^3 , so the total mass is $83,000,000\text{g}$, or about 91 tons (US).

And given that the plane was spread over two floors or more, the total weight of the gypsum in the impact area probably outweighs the plane. The presence of this quite significant mass would have:

- helped convert the kinetic energy of plane parts to other forms, eg. heat and pulverization.
- transferred the momentum of the plane parts, moving at high speed, into the combined momentum of plane parts and building materials, moving at a much lower speed, and having a much greater frontal area. The south wall may have absorbed a good fraction of momentum, but by that time the material had a large frontal area and very little structural coherence, and was thus unable to puncture the wall, with a few exceptions.

Reynolds later concedes that the core is strong and might have stopped the plane, but changes his argument. He claims that if the plane had stopped the plane we should have seen the tail sticking out of the hole because planes don't fold up "accordion style". A test run by Sandia laboratories (alternate link) disproves this claim: the plane in that test, travelling at 480 m.p.h., was completely pulverized into small, confetti-like pieces as its forward progress was stopped by a concrete barrier. The speed of the 767 in the second impact has been measured at 500-590 m.p.h. At the point of collision with an object sufficiently strong to stop forward motion the structure of the plane would be broken apart instead of remaining whole to transmit a stopping force to the rest of the plane. Too much kinetic energy was being dissipated at the point of collision for the plane to retain its structural integrity. This fracturing process would continue with the impact of the rest of the plane. Only a more gradual deceleration through weaker material (such as the office space) would leave larger pieces intact (such as the fuselage section). In the Sandia test, we see the same illusion of the plane "melting" into the barrier—with any compression or distortion of the fuselage—that we see in the collision of the 767 with the WTC. If this illusion could happen with a solid concrete block, it should be obvious that it could happen with the WTC.

Strangely, Reynolds makes his "accordion" argument despite showing pictures of other plane crashes where the fuselage has come apart into pieces.

Reynolds states several times that the wing tips should have "bounced off" the building in larger pieces than we see on the images of the impact. In support of this he cites what he calls the "shredding mechanism" proposed by the MIT damage analysis (Wierzbicki et al.). His argument distorts and misrepresents information presented in the MIT study. This image that he shows